Security in food, renewable resources, and natural medicines

SFRN 2019

PROCEEDING

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3rd INTERNATIONAL CONFERENCE ON SECURITY IN FOOD, RENEWABLE RESOURCES, AND NATURAL MEDICINES 2019 (SFRN 2019)

Convention Hall Politeknik Pertanian Negeri Payakumbuh
INDONESIA

QUANTUM-LEAP OF AGRI-FOOD SYSTEM 4.0 AND DELIVERY OF SUSTAINABLE DEVELOPMENTS GOALS (SDGS)

September 25-26, 2019

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Welcome Message
Executive Chairman of The 3rd International Conference on Security in Food, Renewable resources, and Natural Medicines (SFRN) 2019

Dear Honorable ladies and gentlemen,

Good Morning and Assalamu'alaikum wr.wb

On behalf of the SFRN 2019 organizing committee, I am really honoured and delighted to welcome all of you to the 3rd International Conference on Security in Food, Renewable resources, and Natural Medicines (SFRN) 2019 at the State Polytechnic of Agriculture Payakumbuh, West Sumatra Indonesia

Our technical program is rich and varied with 8 keynote speeches and 4 invited talks and more than 170 technical papers split between 8 parallel oral sessions and 1 poster sessions. The speakers and participants came from 8 different countries, consist of Academicians, Scientists, Researchers, Practitioners, Professionals, and Government Officialsin multidiscipline branch of knowledge, who gathered here today to share and discuss new findings and applications of innovations for promoting Food Security, Renewable Energy, Sustainable Resources and HealthCare Free for All, in particular for those who in needs. As the chairman of conference 2019 SFRN, I know that the success of the conference depends ultimately on the how many people who have worked in planning and organizing both the technical program and supporting social arrangements. This year, the conference is jointly organized by the Payakumbuh State Agricultural Polytechnic and Andalas University. We also thank to the steering committee fortheir wise and brilliant advice on organizing the technical program; and also to the the Program Committee, both from the Payakumbuh State Agricultural Polytechnic and Andalas University , for their thorough and timely reviewing of the papersand to the Directorof Payakumbuh State Agricultural Polytechnic and the rector of Andalas University, and the Head of the Institute forResearch and Community Service of Andalas University, and Payakumbuh State Agricultural Polytechnic. Our recognition should go to the Organizing Committee members who have all worked really hard for the details of the important aspects of the conferenceprograms and social activities, and then we extend our gratitude to our students who bore the arduous burden for preparing this event.

We hope this event is also a good step in gaining strengthenn cooperation between our universities as we know that the State Agricultural Polytechnicof Payakumbuh is part of the Andalas University previously, of course the psychological relationship between the State Agricultural Polytechnicand the Andalas University is really close.

Finally on behalf of the committee, we apologize profusely for all the shortcomings and everything that is not properly in organizing this event and hopefully AES-Network contributes significantly to the research and technology for the good of humanity.

Thank you

Fithra Herdian, S.TP, MP

Message from Afro-Eurasia Scientific (AES) Network
3rdInternational Conference on Security in Food, Renewable resources, and Natural Medicines (SFRN) 2019

Dear Honorable and Distinguished guests,
Ladies and gentlemen,

Assalamu'alaikum Warahmatullahi Wabarakatuh and Good Morning

On behalf of the AES Network, I am honored and delighted to welcome you to the 3rdInternational Conference on Security in Food, Renewable resources, and Natural Medicines (SFRN) 2019 at the Agricultural State Poly Technique of Payakumbuh, Indonesia. I believe we have chosen a venue that guarantees a successful technical conference amid the culture, delicacy and scenery of Payakumbuh, the city of "Rendang".

The AES-Network aims to Promote Livelihood Through Food Security, Promote Future Smart and Green Mobility by Using Renewable Energy, Promote Prosperity by Equally Managing and Distributing the Sustainable Resources and Promoting Enjoyable Long-Life by using Natural Medicines With Free Health Care For All. The AES-Network was established in 2018 and already have memberships from 12 countries. Our members consist of Academicians, Scientists, Researchers, practitioners, professionals, and government officials from multidiscipline branch of knowledge, who gathered and contributed their expertise to share and discuss new findings and applications of innovations for promoting Food Security, Renewable Energy, Sustainable Resources and Free Health Care for All.In particular, the network aims to alleviate the condition of those who in dire needs. In the future, we also expect to provide technical demonstrations, and numerous opportunities for informal networking for Promoting Food Security, Renewable Energy, Sustainable Resources and Free Health Care for All. In this opportunity, we invited you to become our members and join our efforts for a better life to all of mankind.

As a team, we acknowledge the existence of mutual interest among university and college educators, researchers, activists, business sector, entrepreneurs, policy

makers, and all society members. We must promote the need to strengthen cooperation for establishing Security in Food, Renewable Resources, and Natural Medicines in Africa, Europe, and Asia.

The AES-Network believe, a firm foundation for mutual collaboration with the spirit of equality and partnership and thereby contribute towards sustainable development in these three regions.

Therefore, through networking, friendships, and joint efforts, the capacity of our network can be enhanced to address major challenges in securing the Food, Renewable Resources, and Natural Medicines in Africa, Europa, and Asia.Our Network goals areto increase the awareness of educators, researchers, scientific community, business sector, entrepreneurs, and policy makers in Africa, Europa, and Asia, that the future of a better world, lies within their responsibilities, and to improve the networking, mobility and mutual collaboration of scientific community, business sector, entrepreneurs, and policy makers in Africa, Europe, and Asia to energize the delivery of Sustainable Development Goals.

Finally, I hope that, by registering our network, you will be provideda common platform and support the exchange of knowledge, while at the same time, we offer constructive dialogue across and within the various interest and stakeholder groups, including the intended beneficiaries, and arrived at the best solutions to our terminal goal, Promoting Food Security, Renewable Energy, Sustainable Resources and Free Health Care based on scientific evidence in Africa, Europa, and Asianregion.

Thank You for Joining us!

President
Assoc. Prof. Dr. Eng. Muhammad Makky

Welcome Message
Head of Institute for Research and Community Service
Universitas Andalas

Dear Honorable and Distinguished guests,
Ladies and gentlemen,

Assalamu'alaikum Warahmatullahi Wabarakatuh and Good Morning

It is with great pleasure that I welcome the participants of the SFRN 2019 in Payakumbuh, the city of "Rendang", the prime of Indonesian delicacy.

In this esteem event, we share the knowledges, and imparted it to the people. The quest for knowledge has been from the beginning of time but knowledge only becomes valuable when it is disseminated and applied to benefit humankind. It is hoped that this conference will become a platform to gather and disseminate the latest knowledge which can be adopted for securing the food, resources, and health for mankind, in Asian, European and African region.

Academicians, Scientist, Researchers and practitioners from multidiscipline branch of knowledge who gathered here today will be able to share and discuss new findings and applications of innovations for ensuring food security, in particular for those who reside in developing countries. It is envisaged that the intellectual discourse will result in future collaborations between universities, research institutions and industry both locally and internationally. In particular it is expected that focus will be given to issues on environmental and sustainability. Therefore, we urge to all participants, to establish a scientific network that will voice the needs

Researchers in the multi sectoral aspects related to the benefit of mankind have been progressing worldwide. Food is a basic right, while energy drive the world. Human need a lot of resources so the civilization can be flourished. But human is not immune, and thus, ones need to take care of their health regularly. Modern Agri-food systems is the foundations of a decent life, a sound education and the achievement of

the Sustainable Development Goals. Over the past decade, we have witnessed a chain reaction that threatens the very foundations of life for millions of the world's people. Rising energy prices drove up the cost of food and ate away the savings that people otherwise would have spent on health care or education. Unsustainable plantation management induced forest fire and posed haze hazard to the whole Sumatra island and our neighboring countries.

The human cost of the food and energy crisis has been enormous. Millions of families have been pushed into poverty and hunger. Thousands more suffering from the collateral effects. Over the past year, food insecurity led to political unrest in some 30 countries. Yet because the underlying problems persist, we will continue to experience such crises, again and again -- unless we act now. That is why we are here today.

We must make significant changes to feed ourselves, and most especially, to safeguard the poorest and most vulnerable. We must ensure safety nets for those who cannot afford food, or energy, nor even a health service. We must transform agricultural development, markets and how resources is distributed. We must do so based on a thorough understanding of the issues. That is the only possible way we can meet the Goals of Sustainable Development.

Thank You,

Assoc. Prof. Dr.-Ing. Uyung Gatot S. Dinata,MT.

Opening Ceremony
Rector of Andalas University

Dear Honorable and Distinguished guests,
Ladies and gentlemen,

Assalamu'alaikum Warahmatullahi Wabarakatuh and Good Morning

I welcome the opportunity to address you at this important event.

It gives me great pleasure in welcoming you to this 3rdConference on "Security in Food, Renewable resources, and Natural Medicines (SFRN)" 2019. I am delighted that so many have accepted our invitation. I am particularly happy that we have in this room, dedicated individuals from so many stakeholder groups — including our most respected and distinguished guest "The ministry of Agriculture of the Republic of Indonesia". We also welcome the mayor of Payakumbuh and the Regent of Lima Puluh Kota. We extend our welcome to the civil society, the private sector, international organizations; the science community; and others dedicated to help create an environment in which people can escape food insecurity. Imagine what we can do together if we make the security for all as an our top priority, and pull in the same direction. We can make a difference in the lives of millions.

Food is a basic right. Food security are the foundations of a decent life, a sound education and the achievement of the Sustainable Development Goals Access to medicines - a fundamental element of the right to health. Health is a fundamental human right, indispensable for the exercise of many other rights in particular the right to development, and necessary for living a life in dignity. Moreover, human rights principles and language are being used to support resource access claims as rights-based approaches empower individuals and groups to gain or maintain access to natural resources

Much progress has been made during the last decades but much more needs to be done. Millions of people are Insecure worldwide, meaning that they either starve or they do not know from where their next meal, health care or resources will come.

Much of the progress on security has occurred at the expense of our environment. With business as usual, we foresee that the production improvements during the next decade will be less than the last one, while the environmental degradation will continue, and health will deteriorate significantly. Without available resources to seek, mankind will become endanger species in a very short time.

Solutions to the security problems need to be designed and implemented within a new and rapidly changing environment. Globalization and sweeping technological changes offer new opportunities for solving these problems. A number driving forces or trends must be taken into account in developing appropriate action. Some of the action needed, such as appropriate technology for small farms, is not new but it must be cast in the new and changing global and national environment, taking into account new opportunities and risks. I hope that by providing a forum for knowledge exchange, this conference will help identify the action to be taken. Furthermore, this conference will help to provide constructive dialogue across and within the various interest and stakeholder groups, including the intended beneficiaries, and arrive at the best solutions.

In conclusion, even if those responsible give high priority to achieving sustainable security for all and back it up with action, the world may not achieve the goal by 2030. But we will be much closer than with business as usual. I urge all of us to provide the strongest support for this event, to enable securing the food for all in the closest time possible. It is my sincere optimism that through the accomplishment of the objectives of this event, we will come to an important step nearer to secure the food for all.

Finally, I would like to thank the organizing committee who have spent their utmost efforts to prepare and manage this event successfully. Let me conclude my remarks by wishing our guests happiness, good luck and great success in the conference.

May I announce now the opening of the "3rd International Conference on Security in Food, Renewable resources, and Natural Medicines (SFRN) 2019" in Payakumbuh.

Thank you.

Rector,
Prof. Tafdil Husni, SE, MBA, PhD

Welcome Message
Director of Politeknik Pertanian Negeri Payakumbuh

Dear Honorable ladies and gentlemen,

Good Morning and Assalamu'alaikumwr.wb

I congratulate to all participants on the invitation and participate at our beloved campus Payakumbuh StateAgricultural Polytechnic. I feel really honoured to welcome all of you at our event, the 3rd International Conference on Security in Food, Renewable Resources, and Natural Medicines (SFRN) 2019 at thePayakumbuh State Agricultural Polytechnic, Indonesia.

Food security is a very important aspect in a country's sovereignty. Food also determines the future direction of a nation. Many social and political fluctuation can also occur if food security is disrupted. Food availability that is smaller than its needs can create economic instability. This critical food condition can even endanger economic and national stability. In the current situation, there are many challenges in exteriorize food security, such as climate change, population, limited natural resources and other challenges both locally, regionally and globally.

Renewable resources are also our starting point to start sustainable development. Research on renewable resources is also very important as the solution in meeting the principles of sustainable development. As we know that Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Sustainability is the foundation for today’s leading global framework for international cooperation - the 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDGs)

The discovery of treatment based on local culture also contributes greatly to the good of humanity. Unfortunately, there are still many treatments that have not been carried out by scientific research. So, through this conferencewe hope it can be a trigger to increase in traditional plant-based treatments that not go through complex

chemical processes, so that the effectiveness of the pillars can be further suppressed and also contribute to the community's economy.

Finally, I would like to express my gratitude to all people who involved in organizing this event and to all ofstakeholders who have helped to make this event go on succesfully. Please accept my apologize for any shortage, Assalamu'alaikumwr.wb.

Thank you

Ir. Elvin Hasman, MP

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The Difference in the Effectiveness of Propolis and Triamcinolone Acetonide in Traumatic Ulcer Healing in Mucosa of the Oral Cavity

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ABSTRACT. A traumatic ulcer is a lesion on the oral cavity caused by trauma. These ulcers usually painful and often require topical drugs and systemic treatments are effective. Propolis is one of the herbal remedy products that have been widely used in the treatment and prevention of various diseases, such as treating wounds after mayor surgery and inhibit the growth of fungi, such as Candida. This research is using the pre-test – post-test control group research design, done in the animal house, at the biochemistry department, faculty of medicine, Universitas Andalas using 20 mice as samples. On the first day, 20 mice are given 5% H_2O_2 liquid on the bottom lip of the labial mucosa to stimulate the onset of ulcer. The next day, the initial traumatic ulcer is formed, and the size is measured. After the initial ulcer is formed, the size of the ulcer is measured twice a day (morning and evening) at control group I (which is treated with propolis) and control group II (treated with triamcinolone acetonide) performed for ten days. An average of traumatic ulcer healing was seven days with propolis application and 6.9 days with the application of triamcinolone acetonide. The results of the statistical analysis using Independent T-test demonstrated the value of $p = 0,874$ ($p < 0.05$). It was concluded that the activity of triamcinolone acetonide is better than propolis in healing the traumatic ulcer.

Keywords: Propolis, Triamcinolone acetonide, Traumatic ulcer, Mucosa of the oral cavity

INTRODUCTION

The oral mucosa has either a protective or defense function that will protect the oral cavity from trauma, disease, and carcinogenic agents. The oral mucosa may be affected by a variety of conditions and lesions that may be harmful to some, but for some people can be a severe complication (Ali M et al., 2013).

One of the most common diseases of the oral mucosa is traumatic ulcers. The prevalence of traumatic ulcers is quite high compared to other oral lesions. Research conducted by Castellanos, et al. in 2003 in Mexico of 1000 people showed a prevalence of traumatic ulcers by 40.24%. Cebeci et al., in his research in 2005 in Turkey, found that the prevalence of traumatic ulcers reached 30.47% (Cebeci, 2009).

Research on traumatic ulcers in Indonesia is still scarce because the disease is still considered not a serious problem, so less inviting attention. A study conducted by Anindita at the Faculty of Medicine of the University of Sam Ratulangi in Manado in 2012 of 61 people shows a prevalence of traumatic ulcers by 90.01%. Angelia, in her research in Minahasa district to 30 people, found that the prevalence of traumatic ulcers reached 93.3% (Anindita, 2012).

Traumatic ulcers may be caused by physical/mechanical, thermal, or chemical trauma. Physical/mechanical trauma can be caused by malocclusion, unsuitable denture prostheses, brushing teeth, and excessive use of floss yarn. Thermal trauma can be caused by eating too hot and iatrogenic foods or drinks. Chemical trauma may be caused by the use of aspirin in direct contact with the oral mucosa or the use of mouthwash containing alcohol, hydrogen peroxide, or phenol (Langkir A, 2015).

A traumatic ulcer is an open wound involving the epithelium and may involve underlying tissue (Berreta et al., 2012). The traumatic ulcer is often left untreated to interfere with oral activity such as mastication and speech. Ulcers are shaped like hollows or holes and often look round but can also be irregular. At first, the erythema area is found in the periphery, then slowly turns white due to the keratinization process. The middle part of the ulcer is usually a grayish-yellow color (Castellanos et al. 2008). These ulcers are usually painful and often require topical and systemic medicines for effective treatment.

The drugs commonly used in the treatment of traumatic ulcers in the oral cavity are topical corticosteroids, such as triamcinolone acetonide and dexamethasone. How this drug works by inhibiting the accumulation of inflammatory cells in places of inflammation. It also inhibits phagocytosis and releases mediators from inflammation in the form of prostaglandins, quinines, histamines, liposomal enzymes, and complement systems (Cavalcante et al., 2011). This drug has various side effects, ie, the risk of candidiasis, the depletion of mucosal cells, and the risk of systemic absorption (Langkir A, 2015).

Propolis is a complex mixture derived from resin (sap) collected by bees from various plant species, especially from the bark of the tree, buds, or other parts of the plant. The bee then mixes this resin material with an enzyme secreted by the bee's mandible gland, though the components contained within the propolis are unchanged (Palombo EA. 2011). Each bee has a specific resin source present in each region so that the propolis composition varies greatly (Agnieszka et al., 2013).

Propolis is one of the herbal medicine products that has been widely used in the treatment and prevention of various diseases, such as treating wounds after significant surgery and inhibiting the growth of candida fungi. Propolis contains no toxins and displays various antimicrobial activities against various bacteria, fungi, parasites, and viruses. Other biological and pharmacological properties of propolis have anti-inflammatory, antitumor, antioxidant, hepatoprotective, hemato-stimulative, and immunomodulatory properties (Wagh, Vijai D, 2013).

The active ingredients contained in propolis are polyphenols (flavonoids, phenolic acids, and esters), terpenoids, steroids, and amino acids, in which propolis can inhibit the inflammatory process of tissue (Gunawan, Sulistia Gan, 2007).

Based on this background, researchers are interested in researching comparing the speed of the healing process of traumatic ulcer tissue using propolis and triamcinolone acetonide.

RESEARCH METHODS

This type of research is experimental research, using pre-test design post-test control group design. The study was conducted at Animal house, part of Biochemistry Faculty of Medicine, University of Andalas. The population in this study was a white Wistar mouse. The sample is the partial or representative of the population to be studied. The samples in this study were white Wistar mice having inclusion and exclusion criteria. To obtain a large sample in this study, the researchers used the formula Federer, namely:

$$(t-1)\,(n-1) \geq 15$$

Description: t = number of treatments
n = number of samples

The researchers divided into two groups: group I, which experienced traumatic ulcers and treated with propolis, and group II, which experienced traumatic ulcers and treated with triamcinolone acetonide.
Thus, the treatment (t) is 2,
then: $(t-1)\,(n-1) \geq 15 \Rightarrow n \geq 16$

Based on these calculations, the minimum required sample size (n) is 16 white Wistar mice divided into two groups where each group consists of 8 mice. 2 mice were each added to each treatment group as a substitute if there were dead or sick mice.

The research procedure is;

Mice adapted to the environment for a week and were given food and drinks. These mice are kept in a cage with husks covering the floor of the cage, in a dark cycle of 12 hours and light 12 hours.

1. mice were randomly grouped into two treatment groups. Each group consists of 10 mice. The first group used propolis, and the second group used triamcinolone acetonide as treatments. Each treatment group is labeled with markers.
2. Before treatment, each mouse is treated with anesthesia by ether inhalation to suppress pain sensation at the beginning of treatment
3. Then, both treatment groups were given 5% H2O2 on the buccal mucosa using cotton buds to initiate traumatic ulcers. The treatment is made by dipping cotton

buds to 5% H2O2 liquid, then applying it to the buccal mucosa area once, and the ulcers will be formed and maturing in one day.

4. First day (1 day after application of 5% H2O2 liquid):
5. Performed early ulcer measurements
6. The size of the ulcer is measured by using a sliding thread in the vertical, horizontal, and right-left diagonal directions so that there are 4 times the measurement. The ulcer is considered a circle, so the area of the ulcer is calculated by the formula: L = $\frac{1}{4}\pi D^2 \frac{1}{4}\pi D^2$ where L = Extensive Ulcer; D = Average diameter; and $\pi\pi$= 3.14. The average diameter measured is calculated by the formula:

   D = $\frac{d_1 + d_2 + d_3 + d_4}{4}$ where
7. Propolis was applied to Group I applied propolis twice a day using a syringe in the ulcer, and triamcinolone acetonide was applied to Group II twice a day using cotton buds.
10. The measurement of the ulcers of each group performed every morning.
11. The area of ulcer healing was calculated by using the formula.

Measurement of the area of the ulcer is done by measuring in the vertical, horizontal, and diagonal right-left. Ulcers are considered circles.

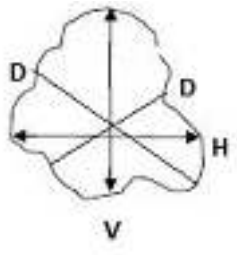

Figure 1. How to Measure the Area of the ulcer

RESEARCH RESULT

The sample size is 20 mice. This research was conducted by researchers and assisted by some dentistry students who had previously been given direction and training so that have the same perception.

Table 1 Distribution of mice according to the day ulcers healed

Day of Ulcer Cured (days))	Amount (tails)	Percentage (%)
4	1	5
6	7	35
7	7	35

8	2	10
9	2	10
10	1	5
Total	20	100

In the table it can be seen that 7 mice experienced ulcer healing for 6 days and 7 tail (35%) mice also experienced ulcer healing for 7 days (35%). As for the rest of the other mice experienced ulcer healing each 4 days (5%), 8 days (10%), 9 days (10%), and 10 days (5%). Bivariate analysis was performed to determine the difference of ulcer healing with propolis and triamcinolone acetonide. Wound healing is seen by seeing how many days the ulcer reaches healing. The first step is to test the data normality through Kolmogorov-Smirnov test. Data is normally distributed if $p>\alpha$ where $\alpha = 0,05$.

Table 2 Result of data normality test

	Group	***Kolmogorov-Smirnov***	***P***
Duration of Healing	Propolis	10	0,011
	Triamcinolone Acetonide	10	0,200

After the data is known to be normally distributed, then the data is tested parametrically using Independent Sample T-test statistic. The Independent Sample T-test is used to test the significance of the average difference of the two groups.

Table 3 Results of data analysis using Independent Sample T-test

Group	**Amount Sample (n)**	**Mean**	**Standard Deviation**
Propolis	10	7,00	1,155
Triamcinolone Acetonide	10	6,90	1,595

p-value = 0,874

The average duration of traumatic ulcer healing using propolis was 7.00 days with a standard deviation of 1.155 days, whereas the mean of traumatic ulcer healing using triamcinolone acetone was 6.90 days with a standard deviation of 1,595 days. The result of statistic test was obtained with $p = 0,874$, so it can be concluded that the

activity of triamcinolone acetone is better for traumatic ulcer healing on oral mucosa than propolis but not statistically significant.

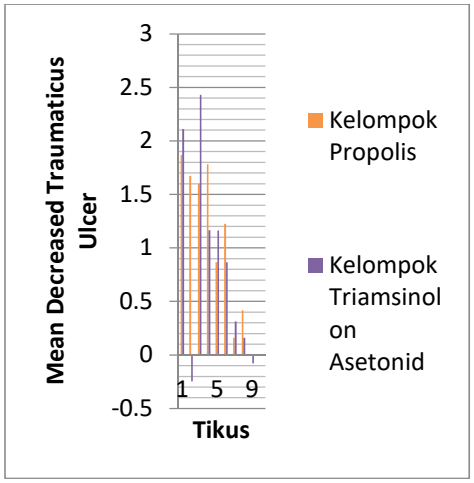

Figure 2 Graph of average decrease in traumatic ulcers

From the graph above can be seen comparison of the average reduction of traumatic ulcers in the group of propolis and group of triamcinolone acetonid not seen a very significant difference between the two groups.

DISCUSSION

Propolis is a resin or resin material derived from various barks of trees or buds, which seep out of the bark of the tree or bud. The bee then mixes this sap with an enzyme secreted from the bee's mandible gland. Propolis composition generally consists of resin and balm (50%), 30% wax, essential oil (10%), pollen / pollen (5%), and other components (5%). Propolis contains very complex chemical compounds, aromatic acids and esters, phenolic acids, flavonoids (flavones, flavonols, flavonones, dihydroflavones, and chalcones), terpenes, beta-steroids, aromaticaldehyde and alcohols, sesquiterpenes, stilbene, terpenoids, ketones, , and the aroma of alcohol. Propolis has antibacterial, antioxidant, antifungal, antiviral, and antiimflamatory activity (Langlais et al. 2009)(Shanbhag et al.2014).

Triamcinolone acetonide is a drug belonging to the corticosteroid drug of the glucocorticoid group. Glucocorticoids have strong anti-inflammatory and immunosuppression effects. This substance prevents or suppresses the clinical features of inflammation such as redness, heat, pain and swelling. (Shanbhag et al.2014), (Ridwan E. 2013), (Herdianti D. 2011)

In this study observations on the effectiveness of propolis and triamcinolone acetone in the healing of traumatic ulcers in the oral mucosa. Samples used were white wistar mice aged 2 months. The white wistar mice have several advantages that are often used in a wide variety of studies. The superiority of white wistar mice is, among others, easy to maintain, relatively healthy, quieter, easier to handle if properly held, easy to obtain in large quantities, and the price is relatively affordable.

In addition the shape and structure of mucosal tissue of this mouse is not different from human mucosal tissue (Shanbhag et al.2014), (Johan. 2015), (Ridwan E. 2013).

In this study, the size of traumatic ulcers formed in each of the different mice. This difference is due to various factors. These factors are broadly divided into two groups: local factors and systemic factors. Local factors include the size of the wound, the type of tissue that is injured, the location, clean and dirty wounds (contamination) and the speed of its management. Systemic factors include the general state of the patient along with previous chronic disorders that have been suffered, the state of nutrition, immune system diseases and others (Herdianti D. 2011).

Systemic factors; (Herdianti D. 2011)

1. Nutrition, is a quite prominent influence. Lack of nutrients and minerals needed can cause different ulcers to form.
2. Status blood circulation.
3. Status immunity, disorders and deficiency of the immune system cause injury easily infected and interfere with wound healing
4. Hormonal, glucocorticoid hormone has influence as antiinflamasi, can influence inflamasi process and proliferasi, so that can influence the synthesis of collagen.
5. Local factors; (Herdianti D. 2011)
    1. Infection of the wound
    2. Mechanical factors, such as early mobilization, movement over the wound will be the process of wound healing.
    3. Ben foreign, for example husk and dirt into the oral cavity of the mouse so that ulcers exposed by these substances.
    4. Wound location.
    5. Oxigenasi, is the most important factor that affects the speed of wound healing.

In this study, the highest decrease in traumatic ulcers in the propolis group occurred on the first day and in the acetone group of triamcinolone occurred on the third day. The difference in the duration of ulcer decrease in each group is caused by several factors. Exposed tweezers when opening the mouth of mice and cotton buds at the time of application can affect the diameter of the ulcer. Decreased appetite due to pain in ulcers results in mice lacking nutrients that support decreased extent of ulcers from day to day. Lack of cooperative animal experiments can also be a factor affecting the extent of ulcers. (Herdianti D. 2011)

The duration of traumatic ulcer healing in the propolis and triamcinolone acetonid groups was not significantly different. In the propolis group is 7 days and in the triamcinolone acetone group is 6.9 days, this is due to the active substances contained in propolis, one of which is useful flavonoid as antiimflamasi, antibacterial, antioxidant, antifungi, and antivirus (Johan. 2015).

The result of data analysis test using Independent Sample T-test method shows p value = 0,874 so it can be concluded that propolis and triamcinolone acetone have an effect on healing of traumatic ulcer on oral mucosa.

One of the important chemical compounds in propolis is the flavonoid compound. Flavonoids are one of the most widespread natural phenol compounds in plants, which are synthesized in small amounts (0.5-1.5%) and can be found in almost all parts of the plant. Flavonoids have activity as an antioxidant. Flavonoids can increase the effectiveness of vitamin C that can help shape the formation of new collagen. Other chemical substances contained in propolis such as terpen, beta-steroid, aromaticaldehyde and alcohol, sesquiterpenes, stilbene, terpenoids, ketones, fatty acids and alcoholic aromas also help speed up the healing process of traumatic ulcers in the oral mucosa (Cavalcante et al. 2011), (Herdianti D. 2011).

Triamcinolone acetonide has a way of working by inhibiting the accumulation of inflammatory cells in the site of inflammation. It also inhibits phagocytosis and releases mediators from inflammation in the form of prostaglandins, quinine, histamine, liposomal enzymes, and complement systems. This drug also has various side effects that is the risk of candidiasis, thinning of mucosal cells, and the risk of systemic absorption (Langkir A), (Jeske.2012), (Cavalcante *et al*. 2011). It can be concluded that propolis can be considered drug selection for healing of traumatic ulcers in the oral mucosa.

CONCLUSION

Based on the results of this study can be concluded:

1. Propolis can be used topically in the healing of traumatic ulcers in the oral mucosa.
2. The efficacy of triamcinolone acetonide is better than propolis in the healing of traumatic ulcers, but is statistically insignificant.

Further research is needed by looking at the decrease in epithelial tissue inflammation through histopathology. The results of this study can be used as a basis for further research on propolis in an attempt to make it an alternative therapeutic treatment of traumatic ulcers in the oral mucosa.

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